Ham-Homebrew Digest   Mon, 11 Apr 94   Volume 94 : Issue   94

Today's Topics:
                    Definition of "ripple" in filters?
        Morse Code for links... (was Notch filters and audio...)
                       Notch filters and audio q
                    PIN diodes & feedthru caps, WHERE?
                             Trigonal Beam

Date: Sun, 10 Apr 1994 23:08:27 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!usenet.ins.cwru.edu!nshore!
seastar!jjw@network.ucsd.edu
Subject: Definition of "ripple" in filters?
To: ham-homebrew@ucsd.edu

     What, precisely, is meant by 'ripple' in a filter? IE if I
have a filter that, within the passband, the insertion loss varies
from 2.6db to 1.1db, is this 1.5db of ripple, or .75db?
     Also, then, how does one determine the -3db edges? Is that
-3db from the average of high and low within the passband?
     I *think* I've built a filter adequate for SSB - 2.5khz wide
with 1.5 (or .75) db of ripple, that's 32db down from the average of
high&low only 600 Hertz away. I'd like to know how to correctly
describe it. Thanks.
--
While (its_not_working())   John Welch, N9JZW
  mess_with_it();   jjw@seastar.org

Date: Mon, 11 Apr 1994 03:25:51 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!
sol.ctr.columbia.edu!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!utcsri!
newsflash.concordia.ca!CC.UMontreal.CA!poly-vlsi!nick@network.
Subject: Morse Code for links... (was Notch filters and audio...)
To: ham-homebrew@ucsd.edu

In article <1270.596.uupcb@mwcsinc.muug.mb.ca> bill.shymanski@mwcsinc.muug.mb.ca
(Bill Shymanski) writes:

...stuff deleted...

>I found it pretty easy to generate 1064HZ with the 8748 as a square
>wave; but this has lots of harmonics. It was only a little more
>difficult to make a 6-step waveform and run that through an R-2R
>ladder to make a crude D/A converter - the resulting waveform only
>has 5th and higher harmonics according to my calculation, making it

Bill:

Instead of generating the Morse code tone with the micro, why don't you
just provide an output from the micro that keys an audio oscillator on and
off. To me, this would be simpler to code. An audio oscillator can be
made from 1 section of a Schmitt inverter section. I recently published
an article in QEX about generating morse code in this fashion. This is
just my 2 cents worth. Oh yeah, it was the Feb/94 issue of QEX. 73, Nick

 ****
 *   Nick Ciarallo   *
 *   SR Telecom Inc.   telephone: 514-335-2429 ex: 438   *
 *   Microwave Group   facsimile: 514-334-7783   *
 *   8150 Trans Canada Hwy   internet : nick@vlsi.polymtl.ca   *
 *   St. Laurent, Quebec   hamradio : ve2hot@ve2fkb.pq.can.na   *
 *   Canada H4S-1M5   *
 ****
 *   Accept no substitutes, *REAL* ham radio lives on 220 MHz!   *
 ****

Date: 9 Apr 94 21:06:00 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!utcsri!
newsflash.concordia.ca!canopus.cc.umanitoba.ca!mona.muug.mb.ca!mwcsinc!

bill.shymanski@network.ucsd.edu
Subject: Notch filters and audio q
To: ham-homebrew@ucsd.edu

˘@SUBJECT:Notch filters and audio quality   N
I'm in the middle of building some notch filters for the Morse ID on the
UHF links between our VHF repeaters; the idea is to keep the link ID's
from showing up on the VHF side and disturbing users there.

I'm using a National MF10CCN switch-capacitor filter with two sections
of notch-filter, cascaded, to suppress the 1064Hz Morse. This works
sort-of OK - right now I have the switched capacitor filter set for a Q
of only 10, cutting out a 100 HZ notch centred on 1064Hz. But...how big
a notch can I cut out without degrading speech quality ? Should I go
much smaller - the disadvantage then is that the centre frequency of the
SCF becomes more sensitive to temperature range; I don't want the Morse
showing up on hot/cold days because the oscillator drifted.

The other thing I've noticed is that I still hear the "clicks" produced
by keying the Morse; I guess either the keyers in the repeater
controllers aren't synchronized to the zero crossing, or else there's
some fundamental limitation as to how much I can expect to notch out -
the transient at the start must have frequency components other than
1064 Hz.   I suspect the latter; my own 8748-based ID'er also seems
to generate the same clicks, and the way my software works it has to
key only at zero crossings   (a dit is 85 cycles of 1064 hz followed
by an equal silent period, at 15 words/minute).

I had hoped for 40 dB of notch suppression but the best I've measured
so far is about 30 dB - probably adequate for our purposes. I also have
some problems with the 100x clock of the switched capacitor filter
leaking through to the output; is this unavoidable or should I revise
my circuit board layout again ? A 2-pole filter made of an LM324 seems
to keep most of the 100khz in where it belongs; hopefully the
transmitters won't attempt to send out what little of the 100khz gets
past.

I found it pretty easy to generate 1064HZ with the 8748 as a square
wave; but this has lots of harmonics. It was only a little more
difficult to make a 6-step waveform and run that through an R-2R
ladder to make a crude D/A converter - the resulting waveform only
has 5th and higher harmonics according to my calculation, making it
easier to filter. If I had enough CPU speed left I could put in an
8-bit D/A and use 255 steps/cycle but then it's hard to get the
1064 Hz frequency bang-on; since it takes the 8748 5uS to update the
output port for each step.

Bill

ve4stw
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Muddy Waters Computer Society Inc. Winnipeg, Manitoba, Canada
(204)943-6507,08,09 (204)942-0227 (204)956-4997 (all nodes USR 16.8K D/S)

Date: 10 Apr 1994 12:25:03 -0400
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!europa.eng.gtefsd.com!gatech!
news.ans.net!hp81.prod.aol.net!search01.news.aol.com!not-for-mail@network.ucsd.edu
Subject: PIN diodes & feedthru caps, WHERE?
To: ham-homebrew@ucsd.edu

In article <1994Apr8.162606.225@arrl.org>, zlau@arrl.org (Zack Lau (KH6CP))
writes:

: I'm in the building mode again, and I'm looking for the above parts via
: mailorder. Mouser, Digi-Key and Allied aren't any help, who is?
: 73, Galen, KF0YJ

You might try Dan;s Small Parts and kits
1935 So. 3rd West #1
Missoula, MT 59801
Phone 1.406.543.2872

You also might try Newark electronics, they carry a full line of Motorola stuff
and seem alittle more geared to RF.............

73 de JimN0OCT

Date: 10 Apr 94 09:30:54 CST
From: ihnp4.ucsd.edu!swrinde!news.uh.edu!ccsvax.sfasu.edu!ccsvax.sfasu.edu!
f_speerjr@network.ucsd.edu
Subject: Trigonal Beam
To: ham-homebrew@ucsd.edu

Does anyone have any experience with the "trigonal" wire beam that appeared in
this month's _QST_? I'm thinking about flinging one up on 30m.

73
Jim

K5YUT